H0589 TMA/RECRA

RECRA ENVIRONMENTAL INC.

0052646

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report
****REVISION****

Client : TNU-HANFORD B99-085
RFW # : 9910L500
SDG/SAF #: H0589/B99-085

W.O. #: 10985-001-001-9999-00
Date Received: 10-23-99

SEMIVOLATILE

This narrative was corrected to add the TIC search for Tributylphosphate.

One (1) water sample was collected on 10-21-99.

The sample and its associated QC samples were extracted on 10-26-99 and analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8270B for TCL Semivolatile target compounds on 11-01-99.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.

2. The required holding times for extraction and analysis were met.

3. Non-target compounds were detected in the sample.

4. All surrogate recoveries were within EPA QC limits.

5. Two (2) of twenty-two (22) matrix spike recoveries were outside EPA QC limits.

6. All blank spike recoveries were within EPA QC limits.

7. The sample was spectrally searched for Butylated Hydroxytoluene and Tributylphosphate; however, they were not identified in the sample.

By J. D Wells

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

01-17-00
Date

som\gcmp\data\bna\tnu10500.doc

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

GLOSSARY OF BNA DATA

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

D = Identifies all compounds identified in an analysis at a secondary dilution factor.

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

A = Indicates that a TIC is a suspected aldol-condensation product.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).

Y = Additional qualifiers used as required are explained in the case narrative.

GLOSSARY OF BNA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

Recra LabNet - Lionville Laboratory

Semivolatiles by GC/MS, HSL List — Report Date: 11/23/99 18:31

RFW Batch Number: **9910L500** Client: **TNU-HANFORD B99-085** Work Order: 10985001001 Page: 1a

	Cust ID:	BOWNX1	BOWNX1	BOWNX1	SBLKFG	SBLKFG BS
Sample Information	RFW#:	002	002 MS	002 MSD	99LE1299-MB1	99LE1299-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery	Nitrobenzene-d5	75 %	83 %	88 %	79 %	79 %
	2-Fluorobiphenyl	76 %	77 %	87 %	79 %	76 %
	Terphenyl-d14	79 %	83 %	82 %	84 %	79 %
	Phenol-d5	56 %	56 %	54 %	62 %	66 %
	2-Fluorophenol	75 %	85 %	89 %	79 %	79 %
	2,4,6-Tribromophenol	68 %	76 %	88 %	84 %	83 %
Phenol		11 U	69 %	73 %	10 U	67 %
bis(2-Chloroethyl)ether		11 U	24 U	24 U	10 U	10 U
2-Chlorophenol		11 U	80 %	84 %	10 U	76 %
1,3-Dichlorobenzene		11 U	24 U	24 U	10 U	10 U
1,4-Dichlorobenzene		11 U	50 %	48 %	10 U	46 %
1,2-Dichlorobenzene		11 U	24 U	24 U	10 U	10 U
2-Methylphenol		11 U	24 U	24 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)		11 U	24 U	24 U	10 U	10 U
4-Methylphenol		11 U	24 U	24 U	10 U	10 U
N-Nitroso-di-n-propylamine		11 U	62 %	60 %	10 U	62 %
Hexachloroethane		11 U	24 U	24 U	10 U	10 U
Nitrobenzene		11 U	24 U	24 U	10 U	10 U
Isophorone		11 U	24 U	24 U	10 U	10 U
2-Nitrophenol		11 U	24 U	24 U	10 U	10 U
2,4-Dimethylphenol		11 U	24 U	24 U	10 U	10 U
bis(2-Chloroethoxy)methane		11 U	24 U	24 U	10 U	10 U
2,4-Dichlorophenol		11 U	24 U	24 U	10 U	10 U
1,2,4-Trichlorobenzene		11 U	67 %	64 %	10 U	59 %
Naphthalene		11 U	24 U	24 U	10 U	10 U
4-Chloroaniline		11 U	24 U	24 U	10 U	10 U
Hexachlorobutadiene		11 U	24 U	24 U	10 U	10 U
4-Chloro-3-methylphenol		11 U	69 %	75 %	10 U	66 %
2-Methylnaphthalene		11 U	24 U	24 U	10 U	10 U
Hexachlorocyclopentadiene		11 U	24 U	24 U	10 U	10 U
2,4,6-Trichlorophenol		11 U	24 U	24 U	10 U	10 U
2,4,5-Trichlorophenol		28 U	60 U	60 U	25 U	25 U

*= Outside of EPA CLP QC limits.

Cust ID:	BOWNX1	BOWNX1	BOWNX1	SBLKFG	SBLKFG BS
RFW#:	002	002 MS	002 MSD	99LE1299-MB1	99LE1299-MB1
2-Chloronaphthalene	11 U	24 U	24 U	10 U	10 U
2-Nitroaniline	28 U	60 U	60 U	25 U	25 U
Dimethylphthalate	11 U	24 U	24 U	10 U	10 U
Acenaphthylene	11 U	24 U	24 U	10 U	10 U
2,6-Dinitrotoluene	11 U	24 U	24 U	10 U	10 U
3-Nitroaniline	28 U	60 U	60 U	25 U	25 U
Acenaphthene	11 U	77 %	83 %	10 U	74 %
2,4-Dinitrophenol	28 U	60 U	60 U	25 U	25 U
4-Nitrophenol	28 U	81 * %	84 * %	25 U	74 %
Dibenzofuran	11 U	24 U	24 U	10 U	10 U
2,4-Dinitrotoluene	11 U	81 %	85 %	10 U	77 %
Diethylphthalate	11 U	24 U	24 U	10 U	10 U
4-Chlorophenyl-phenylether	11 U	24 U	24 U	10 U	10 U
Fluorene	11 U	24 U	24 U	10 U	10 U
4-Nitroaniline	28 U	60 U	60 U	25 U	25 U
4,6-Dinitro-2-methylphenol	28 U	60 U	60 U	25 U	25 U
N-Nitrosodiphenylamine (1)	11 U	24 U	24 U	10 U	10 U
4-Bromophenyl-phenylether	11 U	24 U	24 U	10 U	10 U
Hexachlorobenzene	11 U	24 U	24 U	10 U	10 U
Pentachlorophenol	28 U	76 %	91 %	25 U	89 %
Phenanthrene	11 U	24 U	24 U	10 U	10 U
Anthracene	11 U	24 U	24 U	10 U	10 U
Carbazole	11 U	24 U	24 U	10 U	10 U
Di-n-butylphthalate	11 U	24 U	24 U	10 U	10 U
Fluoranthene	11 U	24 U	24 U	10 U	10 U
Pyrene	11 U	80 %	76 %	10 U	80 %
Butylbenzylphthalate	11 U	24 U	24 U	10 U	10 U
3,3'-Dichlorobenzidine	11 U	24 U	24 U	10 U	10 U
Benzo(a)anthracene	11 U	24 U	24 U	10 U	10 U
Chrysene	11 U	24 U	24 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	11 U	24 U	24 U	10 U	10 U
Di-n-octyl phthalate	11 U	24 U	24 U	10 U	10 U
Benzo(b)fluoranthene	11 U	24 U	24 U	10 U	10 U
Benzo(k)fluoranthene	11 U	24 U	24 U	10 U	10 U
Benzo(a)pyrene	11 U	24 U	24 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	11 U	24 U	24 U	10 U	10 U
Dibenz(a,h)anthracene	11 U	24 U	24 U	10 U	10 U
Benzo(g,h,i)perylene	11 U	24 U	24 U	10 U	10 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

BOWNX1

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-085

Matrix: (soil/water) WATER Lab Sample ID: 9910L500-002

Sample wt/vol: 880 (g/mL) ML Lab File ID: D110112

Level: (low/med) LOW Date Received: 10/23/99

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 10/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 11/01/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 10 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	7.22	6	JB
2.		UNKNOWN	7.32	10	J
3.		UNKNOWN	7.60	3	J
4.		UNKNOWN	8.02	10	JB
5.		UNKNOWN	8.08	7	JB
6.		UNKNOWN	8.29	6	JB
7.		UNKNOWN	8.55	9	JB
8.		UNKNOWN	8.65	20	JB
9.		UNKNOWN	8.71	2	J
10.		UNKNOWN	14.45	2	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKFG

Lab Name: Recra,LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-085

Matrix: (soil/water) WATER Lab Sample ID: 99LE1299-MB1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D110103

Level: (low/med) LOW Date Received: 10/26/99

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 10/26/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 11/01/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 10 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	7.22	4	J
2.		UNKNOWN	7.29	3	J
3.		UNKNOWN	8.01	6	J
4.		UNKNOWN	8.07	2	J
5.		UNKNOWN	8.28	2	J
6.		UNKNOWN	8.52	2	J
7.		UNKNOWN	8.55	3	J
8.		UNKNOWN	8.64	9	J
9.		UNKNOWN	14.45	4	J
10.		UNKNOWN	27.44	2	J

Recra LabNet - Lionville Laboratory
BNA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-085

DATE RECEIVED: 10/23/99 RFW LOT # :9910L500

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BOWNX1	002	W	99LE1299	10/21/99	10/26/99	11/01/99
BOWNX1	002 MS	W	99LE1299	10/21/99	10/26/99	11/01/99
BOWNX1	002 MSD	W	99LE1299	10/21/99	10/26/99	11/01/99
LAB QC:						
SBLKFG	MB1	W	99LE1299	N/A	10/26/99	11/01/99
SBLKFG	MB1 BS	W	99LE1299	N/A	10/26/99	11/01/99

RECRA LabNet Use Only: 9910L500

Custody Transfer Record/Lab Work Request

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RECRA LabNet

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FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TRU Hanford B99-085
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: Spec Del: Std TAT: 30 day
Date Rec'd: 10.23.99 Date Due: 11/22/99
Account #:

	VOA	BNA	Pest/PCB	Herb				TCLP Metal	CN	Sulfide	IC Anions	NO2 NO3 Ammonia
Refrigerator #	1	2						2				1
#/Type Container Liquid	3AG	2AG						3PL		1PL	1PL	1PL
#/Type Container Solid												
Volume Liquid	40	1L						500ml		500 ml	1L	1L
Volume Solid												
Preservatives	HCL	—						HNO_3		ZnAc NaOH	—	H_2SO_4
RECRA LabNet Use Only	0624H 0SCSC	0625H						Met(13)		1SFD	Ang(13)	1N3N2 1NH3N

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb				TCLP Metal	CN	Sulfide	IC Anions	NO2 NO3 Ammonia
001	BOWNX0			W	10/21/99	0515	X											
002	BOWNX1	X	X	⊥	⊥	0715	X	X						X		X	X	X

Special Instructions:
Saf# B99-085
Run Matrix QC

COMPOSITE WASTE

DATE/REVISIONS:
→ 1. Sample #002 (IC Anions) rec'd short hold
2. out of hold.
3. Met(13) = as, Ba, Cd, Cr, Pb, Se, ag, Cu,
4. Ni, V, Zn, Be
5. Ang(13) = 1CCL, 1CFL, 1CNO2, 1CNO3, 1CPO4,
6. 1CSO4, 1PH

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # *
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times Y or (N)

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 2 3 °C

Relinquished by	Received by	Date	Time
Fed Ex	D. Smith	10/23/99	10:00

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
*4235 79531002

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-085-12	Page 1 of 1

Collector	Company Contact / Telephone No.	Project Coordinator	Price Code	Data Turnaround
Bowers/Trice	C Cearlock 372-9574	TRENT, SJ	7N	45 Days
Project Designation	**Sampling Location**	**SAF No.**		
200 Area Source characterization - 200-CW-1 OU - QC Sa	200 East	B99-085		
Ice Chest No.	**Field Logbook No.**	**Method of Shipment**		
SNL 421	EL1511	Fed EX		
Shipped To	**Offsite Property No.**	**Bill of Lading/Air Bill No.**		
~~TMA/RECRA~~ DTN 10-21-99	A 000006	4235 7953 1002		
		COA B20CW1 671C		

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS

Preservation	ZnAc+NaOH to pH >9 Cool	Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	HNO3 to pH <2	HCl to pH <2 Cool 4C	HNO3 to pH <2			
Type of Container	P	P	P	aG	P	aGs*	P			
No. of Container(s) / Volume	1 / 500mL	1 / 1000mL	1 / 1000mL	2 / 1000mL	2 / 1000mL	3 / 40mL	3 / 500mL			
	Sulfides - 9030	See item (1) in Special Instructions.	NO2/NO3 - 353.1; Ammonia - 350.3	Semi-VOA - 8270A (TCL)	Gross Alpha; Gross Beta	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	See item (2) in Special Instructions.			

Sample No.	Matrix *	Sample Date	Sample Time										
B0WNX0	Water	10-21-99	0515						X				
B0WNX1	Water	10-21-99	0715	X	X	X	X		X	X			

CHAIN OF POSSESSION

Relinquished By / Date/Time	Received By / Date/Time
Doug Bowers 10-21-99/1400	Ref 2A 10-21-99/1400
Ref 2A 10.22.99/1100	Chris 10-22-99 1100
Chris 10.22.99 1400	FEDEX
FedEx 10.23.99 10:00	D Smith 10.23.99

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040
(2) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Copper, Nickel, Vanadium, Zinc)

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION	Received By	Title	Date/Time
			9910L500
FINAL SAMPLE DISPOSITION	**Disposal Method**	**Disposed By**	**Date/Time**

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-085-12	Page 1 of 1

Collector Bowers/Trice	**Company Contact** C Cearlock	**Telephone No.** 372-9574	**Project Coordinator** TRENT, SJ
Project Designation 200 Area Source characterization - 200-CW-1 OU - QC Sa	**Sampling Location** 200 East		**SAF No.** B99-085
Ice Chest No. SML 421	**Field Logbook No.** EL1511		**Method of Shipment** Fed EX
Shipped To TMA/RECRA 10-21-99	**Offsite Property No.** A 000006		**Bill of Lading/Air Bill No.** 4235 7953 1002
			COA B20CW1 671C

Price Code 7N **Data Turnaround** 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	ZnAc+NaOH to pH >9 Cool	Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	HNO3 to pH <2	HCl to pH <2 Cool 4C	HNO3 to pH <2			
	Type of Container	P	P	P	aG	P	aGs*	P			
	No. of Container(s)	1	1	1	2	2	3	3			
Special Handling and/or Storage	Volume	500mL	1000mL	1000mL	1000mL	1000mL	40mL	500mL			
SAMPLE ANALYSIS		Sulfides - 9030	See item (1) in Special Instructions.	NO2/NO3 - 353.1; Ammonia - 350.3	Semi-VOA - 8270A (TCL)	Gross Alpha; Gross Beta	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	See item (2) in Special Instructions.			
Sample No.	Matrix *	Sample Date	Sample Time								
B0WNX0	Water	10-21-99	0515					X			
B0WNX1	Water	10-21-99	0715	X	X	X	X	X	X	X	

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	10-21-99/1400	Ref 2A	10-21-99/1400
Ref 2A	10.22.99/1100	Chris	10-22-99 1100
Chris	10.22.99 1400	FEDEX	
FedEx	10.23.99 1000	D Smith	10.23.99

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040
(2) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Copper, Nickel, Vanadium, Zinc)

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION	Received By	Title	Date/Time 9910L500
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time